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MARINE ENVIRONMENT PROTECTION COMMITTEE
68th session
Agenda item 6

MEPC 68/INF.37
6 March 2015
ENGLISH ONLY

CONSIDERATION AND ADOPTION OF AMENDMENTS TO MANDATORY INSTRUMENTS

Environmental protection in the Polar Code

Submitted by Friends of the Earth International (FOEI), World Wide Fund for Nature (WWF), Pacific Environment and Clean Shipping Coalition (CSC)

SUMMARY

Executive summary:	Early in the process of developing a mandatory Polar Code, it was envisaged that the Code, unlike the Polar Guidelines, would address both environmental protection and the safety of shipping. A number of submissions envisaged that, in considering the potential impacts from international shipping on polar environments, the Code would cover not only pollution prevention measures, but also a broader range of environmental protection matters. Despite a range of environmental protection concerns being raised in the early stages of discussion, the co-sponsors believe these were reduced to a smaller, albeit important, range of amendments to MARPOL for the sake of expediency. As a result, the co-sponsors are concerned that despite clear original intentions, insufficient attention has been given to environmental protection issues in preparing the Polar Code.
Strategic direction:	5.2
High-level action:	5.2.1
Planned output:	5.2.1.15
Action to be taken:	Paragraph 21
Related documents:	MSC86/23/9; MEPC 60/21/1; MEPC 65/22; MEPC 67/20; DE 53/18/6; DE 54/13/2, DE 54/13/7, DE 54/INF.5; DE 55/12/3, DE 55/12/5, DE 55/12/13 and DE 57/11/9

Introduction

1 This document summarizes views of the co-sponsors* on the scope of the draft Polar Code, part II, and identifies issues that the co-sponsors believe require further consideration, as a matter of urgency, regarding a new work programme item for phase 2 of the work on the Polar Code. This document is not intended to be a submission for a new work programme item, but simply sets out the views of the co-sponsors.

Part II-A Environmental Protection or Pollution Prevention – that is the question!

2 Early in the process of developing a mandatory Polar Code, it was envisaged that the Code, unlike the Polar Guidelines (resolution A.1024(26)), would address both environmental protection, as well as the safety of shipping in polar regions. For example, in document MSC 86/23/9, while making the case for the work to develop mandatory requirements for the polar regions, Denmark, Norway and the United States identify that the work "would address important maritime safety and environmental protection issues." Furthermore, in document DE 53/18/6, the United Kingdom proposes that "where appropriate, additional measures relating to operations in polar waters required to ensure the protection of the marine environment" should be included and highlighted the need for polar-specific shipboard oil pollution emergency plan (SOPEP) requirements to be developed. It is clear from a number of submissions that it was initially envisaged that, in considering the potential for impacts from international shipping on polar environments, the Code would cover not only pollution prevention measures through amendments to MARPOL, but also a broader range of environmental protection matters. For example, document MEPC 60/21/1 (Norway) proposes a systematic analysis of MARPOL, the AFS Convention, the Ballast Water Management Convention and other instruments to identify what types of extra measures, if any, should be put in place. Document DE 54/13/2 (New Zealand) identifies search and rescue and oil spill risks and responses as areas in need of further attention, and document DE 54/13/7 (Norway) includes an analysis of, and suggestions in relation to MARPOL Annexes I to V and emphasizes the difficulties of combatting oil and chemical spills given the environmental conditions and lack of emergency preparedness capacity.

3 At DE 54, Norway provided a report from Det Norske Veritas (DNV) entitled "Regular operational emissions and discharges from shipping in polar areas–particular environmental aspects", which considers emissions to air, oil, sewage and grey water, garbage, anti-fouling compounds, noise and disturbance, collisions between ships and marine mammals, lost containers and onshore waste reception facilities, to encourage assessment of environmental protection in polar environments (DE 54/INF.5). In September 2011, a workshop on environmental aspects of the Polar Code was organized by the IMO and funded by the Norwegian Government. Its purpose was to supplement the development of a mandatory Polar Code through the identification of environmental hazards specific to polar areas. Unfortunately, there was not sufficient time to complete the work; however, an extensive list of environmental hazards was produced and, for many of the hazards, possible additional controls were identified. Hazards included black carbon, SO_x, NO_x, light intrusion, ozone depleting chemicals, volatile organic compounds, incinerator emissions, noise to water, noise to air, operational discharges (oil, chemicals, grey water, treated and untreated black water), alien species (as fouling organisms, in ballast water or on board ships), waste food and garbage, fishing debris, ship-to-ship collision, ice collision, marine animal collision, grounding (powered or drifting), fire/explosion, antifouling coatings, broken ice, structural failure and foundering and stability.

* The preparation of this document was assisted by the Antarctic and Southern Ocean Coalition (ASOC) and supported by the International Cryosphere Climate Initiative (ICCI).

4 Despite the wider environmental protection concerns raised in the early stages of the discussion of what was initially expected to be an environmental chapter for the Polar Code, now part II, the co-sponsors believe that the broader environmental protection focus has been reduced to a smaller, albeit important, range of amendments to MARPOL (Annexes I, II, IV and V) for the sake of expediency. Some of the major threats to polar environments from an increase in shipping activity, such as oil spills, the introduction of invasive species and black carbon emissions, still require further detailed consideration and adoption of measures to provide the requisite protection needed in polar environments.

5 Recognizing that MEPC 67 (MEPC 67/20, paragraph 9.21) confirmed that any future amendment to the Polar Code to introduce additional or new environment-related requirements would need the approval of the Committee as a new output, at this stage the co-sponsors would simply like to underscore some areas where it is believed that part II-A of the Code would benefit from further work. It is anticipated that work on phase 2 will commence in 2016, and it will be important to ensure that any future consideration of environmental protection in polar regions should not be a last minute add-on to deliberations focused on the safety of shipping.

Areas for future consideration

Introduction of non-native species

6 In document MEPC 60/21/1, Norway noted that the Arctic Ocean constitutes an effective barrier between the Pacific Ocean and the Atlantic Ocean, and that increased shipping traversing the Arctic Ocean heightens the probability that organisms can be spread by ships across this barrier. Norway goes on to suggest that possible mitigating measures could be discussed and made part of any future regulations governing polar shipping. In document DE 55/12/3, New Zealand proposes making the g*uidelines for ballast water exchange in the Antarctic Treaty Area* (resolution MEPC.163(56)) mandatory for vessels entering the region, while Norway (DE 55/12/5), proposes that, until the Ballast Water Management Convention has been globally implemented, ballast water management should be addressed with respect to polar regions through the Code. In addition, the study by DNV (DE 54/INF.5) emphasizes the need to control the spread of organisms via fouling on ships' hulls and rudders and notes that this is an issue for which there is no global legal instrument at the current time, only guidance.

Oil spill response

7 In document DE 54/13/2, New Zealand underlines the risk of an oil spill in the Antarctic and, in particular, the limited opportunity for response. The submission notes that, while lighter fuels will evaporate or disperse more rapidly than heavy grades of oil, the cold air and seawater temperatures in the Antarctic will slow this process and underscores that modelling shows approximately half the volume of a diesel spill could be expected to remain on the water surface five days after a spill has occurred, especially where sea ice dampens wave action. The document highlights that oil spill response capability in the Antarctic area is severely limited by remoteness, weather and sea conditions, and the ability to access shorelines and that it would be extremely difficult to relocate the necessary equipment and trained personnel and provide accommodation for effective oil spill response. It also recognizes that cruise ships generally target activities in areas of high productivity which are important for foraging and breeding wildlife. Contingency plans do not exist for a large-scale marine spill response in Antarctica and, in practice, it is doubtful if it would be possible to respond effectively to a spill or rescue and rehabilitate oiled wildlife. In document DE 53/18/6, the United Kingdom proposes that the Polar Code should develop specific Shipboard Oil Pollution Emergency Plan (SOPEP) requirements for each polar region.

8 In document DE 55/12/3, New Zealand identifies additional options that could be considered to reduce the likelihood of a spill, including management practices, such as slower steaming, and a requirement for all vessels to carry portable pumps and hoses to allow a stricken vessel to pump off the oil remaining in its tanks onto any assisting vessels. This would be particularly useful, considering the distances involved in responding to an incident. France also raised concerns that once a pollutant has leaked from a ship, it can only be controlled by external means that could be stored a considerable distance from the scene of an accident, compounded by the fact that recovery rates are generally very low (DE 55/12/13), and supported New Zealand's proposal to include a requirement in the Code that standardized equipment should be present on board to facilitate oil recovery.

Grey water

9 In document DE 54/13/7, Norway highlights the potential threat from grey water, noting that, at present, Annex IV of MARPOL does not control discharges of grey water and that discharges of grey water in polar waters will take place in areas where elevated temperatures may be regarded as an environmental disturbance factor. As grey water will include high concentrations of detergents that could be accessible to the marine environment and wildlife as nutrients, the document from Norway poses a question as to whether the question of grey water should be considered within the context of the Polar Code. DNV (DE 54/INF.5) also identifies the unregulated discharge of grey water from cruise ships as an area of concern that should be subject to further investigation with regard to potential harmful effects in polar waters. The document recognizes that the wide variety of sources of grey water on board a vessel could result in the discharged effluent containing several chemicals for which the effects and decomposition under different conditions are not necessarily known.

10 It should also be remembered that faecal coliform bacteria levels in untreated grey water from cruise ships – averaging 36,700,000 CFU/100 ml for accommodation grey water and 29,100,000 CFU/100 ml for galley grey water – can exceed those same levels in untreated domestic wastewater by orders of magnitude (U.S. EPA 2008). Faecal coliform levels in untreated grey water effluent, hence, can be more than 100,000 times higher than legally permissible discharge levels for vessel sewage. Moreover, the volume of onboard grey water generation can outstrip sewage production rates by a factor of five or more. Cruise ship survey results reveal grey water generation rates ranging from 36,000 to 249,000 gallons/ day/vessel (Id.). Finally, in addition to bacteria and pathogens, vessel grey water may contain oil and grease, solids, detergent and soap residue, nutrients and metals (e.g. lead, copper, and mercury) (U.S. EPA 2011).

Heavy fuel oil

11 With shipping activity in the Arctic expected to rise significantly in the future (see CMTS 2015 for U.S. Arctic growth), measures such as banning the use of heavy fuel oils (HFO) are critically needed to safeguard the area's inhabitants and fragile marine environment. Spills of this residual fuel are incredibly injurious, long-lasting, and, unfortunately, all too common (e.g. Bornstein et al. 2014). There is really no reason for spills of this type to occur at all in the region, since alternative fuels with less environmentally harmful profiles are available and comparable in price. In fact, nearly all fishing vessels and most expedition style cruise ships – smaller vessels that generally tend to hold only a few hundred passengers and crew at most – do not use HFO (Evenset & Christensen 2011). Larger bulk carriers, cargo vessels, tankers, and cruise ships navigating the Arctic, conversely, almost always use HFO (DNV 2013). And these large vessels (i.e. 10,000 GT or more), while comprising only 28% of unique vessels in the Arctic, consume 75% of the total annual fuel used in the region (Id.).

12 HFO presents an acute ecological threat to the Arctic, particularly when spilled in ice-covered waters. These spills are extremely detrimental for several reasons. Basically, HFO is not only highly toxic (Bornstein et al. 2014), but also persistent. HFO tends to stay in the marine environment for long periods. Tests have shown that even after 20 days in the ocean over 90% of HFO remains, whereas weathering can break down marine diesel in approximately three days (DNV 2011). Biodegradation of HFO can also be slow, based on the specific components of the fuel, or if conditions are disadvantageous (e.g. low water temperature, ice cover) (Martin et al. 2014).

13 An HFO spill can be especially devastating to Arctic wildlife. If the residual fuel comes into contact with seabirds and marine mammals, such as eiders, polar bears and seal pups, the viscous, sticky substance can compromise their feathers and fur, leading to hypothermia and death (AMSA 2009). Other pathways that may cause serious harm, and even mortality to marine animals, include ingestion of fuel oil, directly or via prey, and inhalation of vapours (U.S. Federal Register 2014). Sub-lethal effects from toxic exposure include loss of fertility and metabolic disorder (see Spies et al. 2011). An oil spill also may pose heightened population-level risks, due to Arctic species' comparatively long life spans and slow reproductive rates (Id.).

14 Arctic wildlife is particularly susceptible to oil spills for additional reasons. In the region, sea birds and marine mammals often congregate in large numbers within polynyas (open water areas surrounded by ice) to breed, nest, and rear young at certain times each year. A spill impacting these zones would be extremely harmful. In light of HFO's deleterious characteristics and its potential impacts on Arctic wildlife, it is unsurprising a DNV study found that "the consequences of HFO spills are likely to be more severe than spills of marine diesels" and that "significant risk reduction will be achieved if the onboard oil type is of distillate type rather than HFO." (DNV 2011).

15 In addition, prohibiting the use of HFO would obviate the need to dispose of its considerable waste sludge (one to 5% of fuel volume consumed (AMSA 2009)), which must be discharged onshore, incinerated, or burned as fuel after further processing. A study found that shipping within the Barents and Norwegian Seas alone produces 13,000 metric tons of fuel oil sludge a year (Id.). A switch to marine distillate use would eliminate this concern, as its combustion does not result in any sludge residue.

16 The final reason to ban HFO is to reduce harmful ship air emissions, including black carbon. A recent study has found that, based on a medium-growth scenario, black carbon emissions from shipping in the United States Arctic may climb by 435% in 2025 (ICCT 2015). Switching to low-sulphur distillate fuel from HFO could cut these emissions by on average 30% and possibly up to 80% (Lack & Corbett 2012).

17 At MEPC 65, in May 2013, "the Committee endorsed the view of the majority of delegations who spoke that it was premature to regulate the use of heavy fuel oil (HFO) on ships operating in Arctic waters and noted the view of some delegations that it might be desirable and possible to have such regulations in place in the future." (MEPC 65/22, paragraph 11.23). Later that year, DNV finalized a study on behalf of the Arctic Council's PAME Working Group, identifying ships that operate on HFO and those engaged in oil carriage. The firm also analyzed incident frequencies resulting in oil spills and the type at issue (HFO, distillate, and oil cargo), as well as assessed risk control options (DNV 2013). Next steps pertaining to HFO use in the Arctic have not yet been defined by either the Arctic Council or IMO.

Other hazards – black carbon, antifouling systems, packaged dangerous goods, underwater noise

18 New Zealand raised concerns about black carbon, soot and particulate air pollutants which affect the rate of ice melt and can cause health impacts in polar regions, and supported the introduction of controls for this type of pollutant for vessels entering the polar regions. In document DE 55/12/3. New Zealand references cost-effective measures that could be implemented to reduce emissions, including fuel reduction measures, such as slow steaming, or specific pollution control measures, such as in-engine modifications. Some of the options identified have additional benefits, such as lower risk of collision or grounding with respect to slow steaming or beneficial reductions in NO_x and SO_x emissions from in-engine measures.

19 In document DE 55/12/3, New Zealand proposes that the implementation of the AFS Convention conditions should include a requirement for vessels entering polar regions. In document DE 57/11/9, Denmark, Finland, Iceland, Norway and the United States make a number of proposals for consideration under the environmental protection chapter, including those considered by the DSC Sub-Committee (now the Sub-Committee on Carriage of Cargoes and Containers (CCC)) related to the adequacy of current lashing requirements in polar waters, the low temperature performance of container securing cables and straps and other measures for additional container securing. While, in document DE 55/12/5, Norway recognizes the threat posed by underwater noise and suggests that the MEPC considers its effect on the polar water environment and makes recommendations for inclusion of associated provisions in the Polar Code.

20 The co-sponsors are struck by the number of environmental protection issues raised by Member States in the context of the Polar Code for which, as yet, no measures have been developed for inclusion in the Code, in order to provide the level of protection required in polar waters.

Action requested of the Committee

21 The Committee is invited to note the information provided.